
ECE517: Assignment 2.1

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DUE: 09 SEPTEMBER 2020

A variation of the MMSE criterion minimizes the norm of the weight vector \mathbf{w} . This is a way to control the complexity of the structure. The corresponding function is

$$\mathcal{L}(\mathbf{x}, \mathbf{w}) = \mathbb{E}[e^2] + \lambda \|\mathbf{w}\|^2 \quad (1)$$

1. Make the derivation of the closed solution for \mathbf{w} .
2. Work out an iterative solution using the same technique as used in the Least Mean Squares algorithm.
3. Comment and compare both solutions in a short conclusion section.

The derivations must be complete and the solution should be briefly but completely explained. See the rubric for this and any other homework.